

CLAIMS

What is claimed is:

1. A method, comprising:

forming a layer of material on a silicon wafer, the silicon wafer having variations in surface topology comprising at least one thick region and at least one thin region, the layer of material having variations in surface topology comprising at least one thick regions and at least one thin region corresponding to the thick regions and the thin regions of the wafer, respectively; and

forming at least one narrow region and at least one wide region in the layer of material, the narrow regions and the wide regions corresponding to the thick regions and the thin regions of the wafer, respectively.

2. The method of claim 1, further comprising:

exposing photoresist disposed on the layer of material to light through a mask having a pattern to which near-resolution marks have been added; and

removing portions of the layer of material to leave the narrow regions and the wide regions.

3. The method of claim 1, further comprising:

characterizing the thick regions of the wafer as first zones;

characterizing the thin regions of the wafer as second zones;

and

forming the narrow regions in the first zones and the wide regions in the second zones.

4. The method of claim 3, further comprising:

setting first imaging compensation for the first zones and second imaging compensation for the second zones; and

removing areas of the layer of material to leave the narrow regions in the first zones and the wide regions in the second zones.

5. The method of claim 1, further comprising mapping the surface topology of the wafer to determine the thick regions and the thin regions of the wafer.

6. The method of claim 5, further comprising ellipsometric mapping, laser mapping, or capacitance mapping of the surface topology of the wafer to determine the thick regions and the thin regions of the wafer.

7. An article of manufacture, comprising:

a machine-accessible medium including data that, when accessed by a machine, cause the machine to perform the operations comprising:

forming a layer of material on a silicon wafer, the silicon wafer having variations in surface topology comprising at least one thick region and at least one thin region, the layer of material having variations in surface topology comprising at least one thick regions and at least one thin region corresponding to the thick regions and the thin regions of the wafer, respectively; and

forming at least one narrow region and at least one wide region in the layer of material, the narrow regions and the wide regions corresponding to the thick regions and the thin regions of the wafer, respectively.

8. The article of manufacture of claim 7, wherein the machine-accessible medium further includes data that cause the machine to perform operations comprising:

exposing photoresist disposed on the layer of material to light through a mask having a pattern to which near-resolution marks have been added; and

removing portions of the layer of material to leave the narrow regions and the wide regions.

9. The article of manufacture of claim 7, wherein the machine-accessible medium further includes data that cause the machine to perform operations comprising:

characterizing the thick regions of the wafer as first zones;

characterizing the thin regions of the wafer as second zones;

and

forming the narrow regions in the first zones and the wide regions in the second zones.

10. The article of manufacture of claim 9, wherein the machine-accessible medium further includes data that cause the machine to perform operations comprising:

setting first imaging compensation for the first zones and second imaging compensation for the second zones; and

removing areas of the layer of material to leave the narrow regions in the first zones and the wide regions in the second zones.

11. The article of manufacture of claim 8, wherein the machine-accessible medium further includes data that cause the machine to perform operations comprising mapping the surface topology of the wafer to determine the thick regions and the thin regions of the wafer.

12. A method, comprising:

forming a first layer of material on a silicon wafer, the silicon wafer having variations in surface topology comprising thick and thin regions, the layer of material having variations in surface topology comprising thick and thin regions corresponding to the thick and thin regions of the wafer, respectively; and

forming a sacrificial layer of material on the first layer, the sacrificial layer of material having variations in surface topology comprising thick and thin regions corresponding to the thick and thin regions of the first layer, respectively; and

forming narrow and wide regions in the sacrificial layer of material, the narrow and wide regions corresponding to the thick and thin regions of the wafer, respectively, using direct write of a near-resolution pattern on photoresist disposed on the sacrificial layer.

13. The method of claim 12, further comprising direct writing the near-resolution pattern using at least one of an electron beam, ultraviolet (UV) light, x-rays, or an optical beam.

14. The method of claim 12, further comprising forming the narrow and wide regions in the sacrificial layer of material using direct write of a near-resolution pattern on a photosensitive polymer disposed on the sacrificial layer.

15. The method of claim 14, further comprising forming the narrow and wide regions in the sacrificial layer of material using direct write of a near-resolution pattern on a non-polymer photoresist disposed on the sacrificial layer.

16. The method of claim 12, further comprising:

characterizing the thick regions of the wafer as first zones;

characterizing the thin regions of the wafer as second zones;

and

forming the narrow regions in the first zones and the wide regions in the second zones.

17. The method of claim 16, further comprising:

setting first image compensation for the first zones and

second image compensation for the second zones; and

removing areas of the layer of material to leave the narrow regions in the first zones and the wide regions in the second zones.

18. The method of claim 12, further comprising mapping the surface topology of the wafer to determine the thick regions and the thin regions of the wafer.

19. An article of manufacture, comprising:

a machine-accessible medium including data that, when accessed by a machine, cause the machine to perform the operations comprising:

forming a first layer of material on a silicon wafer having variations in surface topology comprising thick and thin regions in its surface topology, the first layer having variations in surface topology comprising thick and thin regions corresponding to the thick and thin regions of the wafer, respectively; and

forming a sacrificial layer of material on the first layer, the sacrificial layer having variations in surface topology comprising thick and thin regions corresponding to the thick and thin regions of the first layer, respectively; and

forming narrow and wide regions in the sacrificial layer using direct write of a near-resolution pattern on photoresist disposed on the sacrificial layer, the narrow and wide regions corresponding to the thick and thin regions of the wafer, respectively.

20. The article of manufacture of claim 19, wherein the machine-accessible medium further includes data that cause the machine to perform operations comprising direct writing the near-resolution pattern using at least one of an electron beam, ultraviolet (UV) light, x-rays, or an optical beam.

21. The article of manufacture of claim 19, wherein the machine-accessible medium further includes data that cause the machine to perform operations comprising forming the narrow and wide regions in the sacrificial layer of material using direct write of a near-resolution pattern on a photosensitive polymer disposed on the sacrificial layer.
22. The article of manufacture of claim 19, wherein the machine-accessible medium further includes data that cause the machine to perform operations comprising forming the narrow and wide regions in the sacrificial layer of material using direct write of a near-resolution pattern on a non-polymer photoresist disposed on the sacrificial layer.
23. A system, comprising:
 - a transceiver to transmit a wireless signal;
 - a semiconductor structure coupled to the transceiver to select a frequency of the wireless signal, the semiconductor structure having:
 - a silicon wafer, the silicon wafer having variations in surface topology forming at least one thick region and at least one thin region; and
 - a layer of material formed on the silicon wafer, the layer of material having at least one narrow region and at least one wide

region corresponding to the thick regions and the thin regions of the wafer, respectively;

a memory coupled to the transceiver.

24. The system of claim 23, wherein the transceiver is a Global System for Mobile Communication (GSM) transceiver.

25. The system of claim 23, wherein the transceiver is a PCS transceiver.